Department of Environmental Conservation

Response to Comments

For

Alaska Pollutant Discharge Elimination System

Individual Permit

AK0053686 – Furie Operating Alaska, LLC
KLU Julius R. Platform

Public Noticed November 24, 2020 – December 28, 2020

And

January 11 – January 19, 2021

February X, 2021

Alaska Department of Environmental Conservation
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

1 Introduction

1.1 Summary of Facility / Permit

Furie Operating Alaska, LLC (Furie) operates the Julius R. Platform (Platform) located in State waters of Cook Inlet, Alaska. The Platform produces gas from two different gas formations: the Sterling and Beluga formations. Furie received their initial individual permit in March 2014 and operated mostly continuously during the five-year term of the permit. However, in January 2019 gas production at the Platform was suspended due to the formation of gas hydrates that caused blockage of the transmission pipeline to the shore-based Central Production Facility (CPF). Furie submitted a timely and administratively complete application in November 2019 to include an additional discharge for produced water. In order to ensure this problem does not reoccur, Furie proposes to inject methanol into the producing formations to prevent hydrate formation at the wellhead and to install water handling equipment at the Platform to remove the water and also avoid hydrate formation in the CPF transmission pipeline. In addition, Furie has conducted a pilot test to demonstrate acceptable produced water treatment to DEC in order to obtain an approval to construct the treatment system and obtain approval to discharge produced water at the Platform. Furie was issued an Approval to Construct the produced water treatment system and a Draft Permit and Fact Sheet incorporating the addition of a produced water discharge has been issued a 30-day public notice followed by a one-week extension. This document presents comments received on the Draft Permit and Fact Sheet and provides Department responses to those comments.

1.2 Opportunities for Public Participation

DEC proposes to reissue the Permit after considering all substantive public comments. To ensure public, agency, and tribal notification and opportunities for participation, DEC:

- Identified the Permit on the annual Permit Issuance Plan posted online at: http://www.dec.state.ak.us/water/wwdp/index.htm,
- Notified potentially affected tribes and local governments that DEC would be working on this Permit via letter, fax and/or email,
- Posted a preliminary draft of the Permit on-line for a shortened 10-day applicant review from November 19th through the 23rd, 2020 and notified tribes, local governments and other agencies,
- Posted the public notice on the DEC public notice web page November 24, 2020 for a 30-day public review on the Draft Permit and Fact Sheet that closed on December 28, 2020,
- Posted an extended public notice on the DEC public notice webpage January 11 for a one-week extension on the Draft Permit and Fact Sheet that closed on January 19, 2021;
- Posted the Proposed Final Permit, Fact Sheet, and Response to Comments (RTC) document on-line for a five-day applicant review on February 12, 2021, and
- Sent email notifications via the APDES Program List Serve when the Preliminary Draft, Draft, and Proposed Final Permits were available for review.

DEC requested comments on the Preliminary Draft documents from Furie, Environmental Protection Agency (EPA), affected tribes and local governments, National Marine Fishery Service (NMFS) , Fish and Wildlife Service (FWS), and State agencies including, but not limited to, the Alaska Departments of Fish and Game (ADF&G) and Natural Resources (DNR), as well as the Cook Inlet Regional Citizens Advisory Council (RCAC). During the public notice of the

Draft Permit and Fact Sheet, DEC received comments both in support and against reissuance of the Permit as described herein. This RTC document summarizes the comments submitted and the justification for any actions taken or not taken by DEC in response to the comments received.

1.3 Final Permit

The Final Permit was adopted by the DEC on February X, 2021. DEC incorporated some changes resulting from the outgrowth of comments received and responded to in this RTC. All such changes are identified in this RTC document and reflected in the Final Permit and Fact Sheet. Deletions are shown in strikethrough and new text is shown as bolded and underlined. In addition substantive changes, there were also minor changes from the Draft Permit and Fact Sheet after public notice to correct typographical and grammatical errors and to clarify or update information.

2 Comments Received from Industry in Support of Permit Reissuance

Comments received in support of the Draft Permit were submitted from the following various entities that support the oil and gas industry:

- Laura Hendrix - Director of Marketing and Proposals, ASRC Energy Services;
- Tom Hendrix – Vice President of Oil and Gas, Carlile Transportation;
- Lisa Parker – President, Parker Horn Company;
- Pete Stokes – Private Citizen;
- Scott Selzer – President, Udelhoven Oilfield System Services (UOSS);
- Jim Udelhoven – Chief Executive Officer (CEO), UOSS,
- Rebecca Logan – CEO, The Alaska Support Industry Alliance,
- Kari Nore – Project Manager, Resource Defense Council, and
- Patrick Bergt – Regulatory and Legal Affairs Manager, Alaska Oil and Gas Association.

The supportive comments include indication that there is limited environmental impacts from the proposed Permit and the issuance of the Permit will support local jobs and economic growth in the State by promoting safe and environmentally sound resource development practices.

DEC Response

DEC appreciates the support from these industry entities and organizations. No changes have been made to the Permit or Fact Sheet based on these comments.

3 Comments Received from EPA

DEC received comments on the Draft Permit and Fact Sheet from EPA in a letter dated December 22, 2020 that were developed per the National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement (MOA) between EPA Region 10 and DEC. The focus of EPA comments are centered around whole effluent toxicity (WET) testing of the produced water effluent during the pilot test and the implications that inconclusive data in the application had on the reasonable potential analysis (RPA) and the resulting chronic WET limits in the Permit.

3.1 WET Tests Conducted During the Pilot Test are Not Representative of Effluent

Based on their interpretation of the Pilot Test data in the Fact Sheet, EPA states concern that these initial WET tests are not valid and; therefore, cannot be used to evaluate treatment performance for WET. One sample series was evaluated for chronic WET on untreated effluent in November 2018 and another conducted on treated effluent in September 2019, approximately 10 months apart. EPA rationalizes that either the raw samples were held for over 10 months or that the influent results being compared to the treated effluent had a 10 month gap. In either case, the WET results are invalid under 40 CFR 136, unrepresentative of the discharge, and inappropriate for use in determining the treatment efficacy with respect to chronic WET. Furthermore, because methanol was not measured in any of the samples collected, it is not possible to correlate methanol to chronic toxicity that drives the need for dilution in the chronic mixing zone. Although DEC does not need effluent data to evaluate reasonable potential to cause, or contribute to an instream excursion of the water quality criterion for chronic WET, the data should, nonetheless, be meaningful. Further information is needed to support the proposed chronic dilution factor and resultant WET limit.

DEC Response:

EPA is correct in asserting that data is not necessary to render a decision that there is reasonable potential to cause, or contribute to an instream excursion of the chronic WET criterion. Especially when effluent data is absent, or in this case, inconclusive. Per the *Technical Support Document for Water Quality-based Toxics Control, EPA March 1991* (TSD). Per TSD Section 3.1.3 – General Considerations in Effluent Characterization, factors other than effluent data may form an adequate basis for the determination that limits are necessary.

EPA may have a misconception of the data presented in the Fact Sheet for the Pilot Test and how DEC applied other factors to reconcile the lack of conclusive chronic WET and methanol data to support their decision to establish a chronic WET limit. DEC emphasizes that there are no chronic or acute water quality criteria in 18 AAC 70 – Alaska Water Quality Standards (WQS) that would apply to the methanol-laden produced water discharge. Furthermore, the fate and effects of methanol in the marine receiving water of Cook Inlet is anticipated to result in rapid degradation of methanol, with a half-life from one to seven days (See Fact Sheet Section 2.2.4). Therefore, DEC required the applicant to screen for chronic WET during the Pilot Study to estimate the potential for sublethal impacts.

While it is common for first time discharges to be based on limited data, the data is often bolstered during the first term of the permit for new discharges. Hence, the permitting authority may use chronic WET data from other similar facilities, or in this case acute WET studies for methanol, to evaluate reasonable potential and whether chronic WET limits are appropriate until data from full scale operation can be obtained to inform the next reissuance. Whether qualitative or quantitative, the decision must be based on consideration of factors described in 40 CFR 122.44(a)(1)(ii):

> "When determining whether a discharge causes, has the reasonable potential to cause, or contribute to an instream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures

> which account for existing controls on point sources and nonpoint sources of pollution, the variability of pollutant or pollutant parameters in the effluent, the sensitivity of the species to WET testing (when evaluating WET), and where appropriate, the dilution of the effluent in the receiving water."

In the RPA, DEC considered the control on effluent quality based on the Pilot Study data. Note that the Pilot Study treatment system was not designed to remove methanol. Biological treatment necessary to remove methanol cannot fit within the space constraints on the Julius R. Platform. Hence, the removal efficiency of methanol was not a component of the Pilot Study. Accordingly, the 2018 chronic WET test was not intended to be used to assess chronic WET treatment performance, it was performed to screen for species sensitivity and a baseline level of chronic WET in the untreated produced water to inform the initial dilution series in the Pilot Study. Evaluating chronic WET only in the final effluent was appropriate given the characteristics of the discharge and Pilot Study treatment system. See Sections 2.2 and 2.3 of the Fact Sheet.

DEC used all data submitted by the applicant, not just the inconclusive chronic WET data, to characterize the effluent from the Pilot Study. Hydrocarbons and metals were observed to be very low, meeting or only slightly exceeding applicable criteria in the effluent. Given other parameters in the effluent are discharged at or near their respective water quality criteria, DEC made a reasonable assumption that chronic WET in the effluent would be directly related to the concentration of methanol. The evaluation of the various acute WET studies allowed for an estimation of anticipated chronic WET in the effluent based on the range of projected concentrations of methanol needed to prevent hydrate formation. Although the applicant expects to optimize methanol use, there is currently no guarantee this can be accomplished; effective minimum methanol concentrations must be determined during full operation of the facility such that it would be inappropriate to make limits more stringent based merely on operational goals. Therefore, DEC addressed the unknown variability through use of a reasonable potential multiplier (RPM) to help ensure that dilution allowances and limits are appropriate until data is available that represents actual operation of the treatment system as well as the concentration of methanol necessary to mitigate hydrates. The primary objective is to be sufficiently protective of the environment until more data becomes available for reevaluation during the next permit reissuance. The testing for methanol included in the Permit is a means to possibly develop a correlation such that methanol can be used as a surrogate for chronic WET based on a statistically significant data set during full scale operation; obtaining such a significant dataset was not practicable to consider during the Pilot Study. In addition, the application promoted the possibility of chemical substitutions for methanol that could be equally effective in mitigating hydrate formation and pose even less environmental concerns, which also was not practicable to consider during the Pilot Study.

Furie proposed in their application to use 100 TU_c and an RPM of 2.5 based on 10 test results to account for variability and estimate the maximum expected WET in the treated effluent containing methanol. Although the chronic WET data was inconclusive, the merits of the Pilot Study were accepted by DEC based on the observed treatment performance for the other parameters of concern (POCs) (See Fact Sheet Table 2). Furthermore, the data was sufficient to accept that chronic WET was the driving

parameter for the chronic mixing zone; none of the hydrocarbons or metals had concentrations that could replace chronic WET as the driving parameter. Hence, DEC applied the principles of TSD Section 3.3.1 in determining there was reasonable potential for chronic WET, requiring there be a chronic WET limit.

Per TSD Section 3.2, if the permitting authority decides to develop an effluent limit based on limited data, it must present a clear and logical rational in the Fact Sheet. Prior to accepting the 250 TU_c maximum expected WET per the application, DEC conducted a review of acute WET tests for methanol from the Ecotoxicology Database (ECOTOX) and applied an acute to chronic ratio (ACR) of 10 per TSD Section 3.3.3. Given that the concentrations of hydrocarbons and metals in the treated effluent are low (e.g., mostly below chronic water quality criteria), the use of the ECOTOX data seems appropriate as there is limited potential for synergistic toxic effects in the effluent. These effluent characteristics also supports the development of a correlation with methanol as a surrogate of chronic WET. This desktop analysis provided DEC an ability to estimate potential variability of methanol toxicity and resulted in acceptance of the 250 TU_c as a conservative estimate of maximum WET for the purpose of authorizing a chronic mixing zone with a dilution factor of 250 as well as the limit of 410 TU_c. DEC has appropriately developed the Permit and adequately described the logical rationale in the Fact Sheet to promote collection of a statistically significant dataset for use during the next reissuance. DEC has full authority to make these determinations based on the information available at this time.

Given this response is a summary of existing discussions in Fact Sheet Section 2.2, no modifications to the Draft Fact Sheet or Permit have been made based on this comment.

3.2 Chronic WET Limits

EPA disagrees that DEC has discretion for not imposing an AML for chronic WET because it would be inappropriate (i.e., impracticable) to include. Per 40 CFR 122.45(d) [or 18 AAC 530(1)],

> "For a continuous discharge, any permit effluent limitation, standard, and prohibition, including those necessary to achieve water quality standards, must, unless impracticable, be stated as a MDL and AML for any discharger other than a Publically-owned Treatment Works (POTW)."

In Fact Sheet Appendix C, Section C.2.4 DEC states that the AML is inappropriate given the frequency is monthly but does not provide sufficient discussion as to why it is impracticable. EPA states that an inability of a permittee to meet test acceptability criteria for chronic WET sampling requirements and holding times does not render the implementation of the AML impracticable. EPA suggests because DEC imposes an AML for copper on the produced water discharge with a monthly frequency that this demonstrates an inconsistent approach. EPA further states that the MDL will not ensure compliance with the chronic WET criterion at the boundary of the approved mixing zone; the MDL is 410 TUc; whereas, the chronic dilution at the boundary of the chronic mixing zone is 250 based on the maximum expected WET estimate of 250 TU_c. EPA claims that any chronic WET result between 250 and 410 TU_c would technically meet the MDL but absent the backstop of an AML would not provide a demonstration that long-term effluent quality is protective of the chronic wasteload allocation (WLA_c). EPA points out

the relative relationships where the MDL lies somewhere between the WLA_c and the acute wasteload allocation (WLA_a) and the AML is between the WLA_c and the long-term average (LTA). Furthermore, EPA states that the MDL is based on a 24-hour sampling period reflective of the peak worst-case discharge WET; whereas, an AML is more reflective of the long-term average effluent quality. Based on their rationale, EPA claims that an AML for chronic WET must be imposed on produced water to be consistent with CWA regulatory requirements in 40 CFR 122.45(d), to ensure the discharge is protective of the WLA_c, not cause an excursion above the state chronic WET criterion, nor fail to protect existing uses. Lastly, EPA points out that the calculations shown in Appendix C for the development of the unused AML appears to be incorrect due to the use of an incorrect coefficient of variation (CV) of 0.851. Because there are 10 nondetectable results for chronic WET, the correct CV should be the default value of 0.6, resulting in an AML of 204 instead of 343 TU_c.

DEC Response:

Impracticality of Imposing a Chronic WET AML

DEC does not agree with EPA that the failure of the permittee to meet the sample acceptance criteria listed in the chronic test methodology does not constitute, in part, justification for eliminating the AML. Furthermore, there are other important considerations in addition to meeting acceptance criteria that make the AML impracticable to impose. Per 18 AAC 70.990(48):

> "practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."

The logistical considerations of conducting multiple chronic WET tests in a given month (i.e., project) is not comparable to that of copper. Per *Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms, Third Edition, 2002* (*Short-term Marine Methods*), adopted by reference in 18 AAC 70.030, chronic WET tests require three samples spaced out over a five-day period so that the initial sample is replenished twice with fresher samples during the testing period. Samples at the platform are transported to shore by helicopter and it would take six trips to satisfy the sampling requirements during months where the first chronic WET test exceeds the AML compared to only three times if an AML is not imposed. While cost is a consideration, imposing an AML would also be impracticable based on sampling requirements and potential limitations associated with helicopter logistics and bad weather. An inability to collect one timely sample can cause the entire chronic WET test to be invalidated and necessitate a restart (See Comment 7.3 Response).

Sampling for chronic WET requires evaluation of logistics unique to Cook Inlet platforms that is significantly influenced by weather and flight conditions in coastal waters of Cook Inlet. Permittees must rely on weather predictions to determine the feasibility of transporting three chronic WET samples over a weekly period prior to scheduling the chronic WET sampling event. An ideal schedule would allow sample collection at the same time as crew change out simultaneously with favorable weather conditions. DEC is aware of several instances where permittees had to either cancel chronic WET tests or accept the risk of invalidation of results due to an inability to

transport replenishment samples. Based on communication from permittees indicating difficulties with helicopter flights, DEC does not agree with EPA's opinion that such logistical constraints do not occur in the Cook Inlet Region. A single cancellation during a month where there are periods of inclement weather can delay the initial test such that timing for a potential second test is not logistically possible. Furthermore, even if the first set of samples are collected during the first week of the month, second round sample collection and transport may be impossible due to weather and resulting safety concerns. Meanwhile, in the same scenario of exceeding the AML for copper with the first monthly sample, the permittee would only need to consider the logistics of one helicopter flight in the remainder of the month rather than a series of three in one week, which is significantly more difficult logistically.

Hold times are also an important consideration with respect to logistics. Copper samples have a hold time of six months, which poses little concern once the sample is collected and preserved in acid, then shipped to the laboratory. However, the standard hold time for each of the three chronic WET samples is 36 hours. Per the *Short-term Marine Methods*, adopted by 18 AAC 70.030, the permitting authority may extend hold times up to 72 hours (See Permit Section 2.6.3.5). However, DEC does not have the authority to ignore or modify these methods adopted by reference (See Comment 7.3 Response). Therefore, the potential inability to meet a 72-hour hold time also jeopardizes the ability to conduct the multiple valid tests needed to satisfy an AML requirement. As a standard of practice, when a sample exceeds the 72-hour hold time allowed by *Short-term Marine Methods,* Section 8.5.4, the permittee may continue the test at their risk. Acceptance of the test relies on the permittee presenting laboratory validation that the extended hold time did not result in invalid results per *Short-term Marine Methods,* Section 8.7 – Persistence of Effluent Toxicity During Sample Shipment and Holding. The decision to allow continuation of the test using off-specification renewal samples "at the permittee's risk" is coordinated with DEC Compliance and Enforcement on a case-by-case basis. The decision is provided in an email putting the permittee on notice that they risk conducting another valid test should the result be deemed unacceptable by the laboratory. Adding another potential retest in a month to account for the AML would be logistical impracticable.

MDL Alone is Insufficient for Compliance with Chronic WET Criterion and WLA_c

EPA's assertion that the MDL of 410 TU_c could result in an instream excursion of the chronic WET criterion at the boundary of the chronic mixing authorized for a chronic dilution factor of 250, and resulting in the WLA_c of 250 TU_c, is not supported by the TSD. The statistical development of the two parameter water quality-based effluent limitation (WQBEL) for aquatic life factors in the frequency and exposure necessary for compliance with the WLA_c.

The statistically supported WQBEL derivation procedure presented in TSD Section 5.4 – Permit Limit Derivation ensures compliance with the WLAc and WQS (i.e., criteria and the uses they protect). Per TSD Section 5.1.1 – Regulatory Requirements:

> "The permit limit derivation procedure used by the permitting authority should be fully enforceable and should adequately account for effluent variability, consider available receiving' water dilution, protect against acute and chronic impacts,

> account for compliance monitoring sampling frequency, and protect the wasteload allocation and ultimately water quality standards. To accomplish these objectives, EPA recommends that permitting authorities use the statistical permit limit derivation procedure discussed in Section 5.4 with the outputs from either steady state or the dynamic wasteload allocation modeling."

This is also supported by TSD Section 5.2.1 – Statistical Parameters and Relationship to Permit Limits, which states:

> "It is extremely important to recognize that the various statistical principles and relationships discussed above operate in any discharge situation whether or not they are specifically recognized or accounted for. Where a permit limit derivation procedure does not address these principles specifically, the permit writer will be implicitly assuming that there are enough conservative assumptions built into other steps in the process (e.g., water quality models, "buffer" between permit limits and actual operating conditions) to ensure that there will be no reasonable potential for excursions above water quality standards."

The statistical procedure for two parameter aquatic life WQBEL derivation is based on the frequency that an excursion will occur once every three years (i.e., establishes a level of sufficiently stringent). In addition, the criterion continuous concentration (CCC), for which chronic criteria are based, is intended to be the highest continuous concentration that could be maintained in the receiving water without causing an unacceptable effect on aquatic life. If an exceedance of the CCC occurs continuously, there would be an unacceptable effect. However, due to multiple sources of variation in flows and concentrations of the receiving water and effluent, the receiving water concentration (RWC) will not be constant. While an exceedance is defined to occur whenever there may be an instantaneous concentration above the CCC, an excursion (as stated in regulation) is defined to occur only when the average concentration over the duration of the averaging period (i.e., four days) is above the CCC. However, in order for this to hold true, 1) the frequency of the excursion is appropriately limited (i.e., no more than once in three years), and 2) all other average concentrations are below the CCC. Hence, the duration of the averaging period is intended to limit the impacts from exceedances; whereas, the frequency of allowed excursions is intended to limit the impact of excursions (See TSD Appendix D). Because DEC used the statistically derived WQBEL procedure, the EPA claims that the resulting limit will not be protective of the WLA_c or WQS does not appear to be valid.

While DEC strives to be sufficiently stringent given this is a new discharge, EPA's proposed approach of setting the MDL as the WLA_c of 250 TU_c could be inappropriately stringent and based on a perception that the limit derivation procedure in the TSD is not protective enough. This overly stringent approach is not supported by the DEC per *Reasonable Potential Analysis and Effluent Limit Derivation Guidance, June 2014* (*RPA/WQBEL Guidance*) and is based on cautions raised in the TSD. Per TSD Section 5.3.1 – Statistical Considerations of WLAs:

> "If the chronic WLA is used alone as an MDL, the limit will be protective against acute and chronic effects but at the expense of being overly stringent."

The two-value, steady-state aquatic life permit limit derivation is appropriately conservative for this first time discharge where DEC does not currently have a statistically significant dataset needed to accurately evaluate the variability of chronic WET. Hence, a conservative RPM is appropriate until data collected during the next term of the Permit can be used to increase confidence in quantifying the variability of the effluent, which will likely result in lower future limits. Meanwhile, the primary POC, methanol, is not anticipated to cause lethality in the receiving water as it rapidly degrades in the marine environment. There appears to be little justification by EPA for a more stringent MDL and inclusion of an AML for chronic WET. The ability to impose more stringent requirements, does not inherently mean they are necessary.

Although DEC is not making changes to the MDL or including an AML based on this comment, DEC does acknowledge the priority for obtaining characterization data for chronic WET during the permit term in order to accurately assess effluent variability. Therefore, DEC is adding a trigger based on the WLA_c of 250 TU_c to Permit Section 2.5.3 that will require initiation of characterization for the next permit application. The following sentence is added after the second sentence of the first paragraph in Permit Section 2.5.3 and the corresponding sentence and paragraph in Fact Sheet Section 4.2.5.3:

> **"If a result for chronic WET required for compliance with the MDL exceeds 250 TU_c, the permittee must inform DEC within one week of receiving the results and present a schedule for completing a minimum of 10 chronic WET tests for characterization that meets DEC approval."**

Incorrect CV Value Used for AML in Fact Sheet Appendix C, Section C.2.4

In Fact Sheet Appendix C, Section C.2.4 DEC did not update the template language for calculating the AML for produced water. As EPA indicates, the CV value should be 0.6 representing a default CV based on a limited dataset, which would result in an AML of 204 TU_c. Based on this comment, DEC has corrected the calculations as recommended but is not imposing the AML as suggested by EPA. Instead, the final paragraph in Section C.2.4 of the Fact Sheet, Appendix C, has been modified to read as follows:

> "Because the monitoring frequency is monthly, or less, the application of an AML is not ~~appropriate~~ **practicable given difficult logistics of coordinating and executing multiple sample events and transporting samples via helicopter during periods of inclimate weather. DEC believes the benefit of conducting multiple tests per month to support an AML for chronic WET is outweighed by the risk to human life and safety and the potential for not meeting sample schedules, hold times, and persistence of WET samples exceeding hold times due to the logistics of sample collection on the platform and transportation by helicopter to onshore and to out-of-state bioassay laboratories. An MDL without an AML provides better assurance that the permittee can comply with the monthly monitoring despite remote logistics and impacts from inclimate weather as well as the cost of having to repeat sample collections if weathered out.** Therefore, there will only be an MDL established for the discharge. Furthermore, a correlation with methanol, the primary cause of WET in the discharge, may be developed and substituted for WET in future issuances."

Correcting Terminology to Reflect Regulatory Language for RPA Determinations

In multiple locations in the Fact Sheet, DEC did not use precise language reflecting the requirements of 18 AAC 83.435 for conducting an RPA. DEC used a shorthand description using the vernacular word "exceedance" when the correct regulatory language is "instream excursion." The complete phrase in various sections of the Fact Sheet now reads:

> **"To determine whether a discharge causes, has reasonable potential to cause, or contributes to an instream excursion to a state water quality standard,…"**

Additional Definitions

In addition to changing the wording from "exceedance" to "instream excursion," DEC is adding the following definitions for each:

> **"Exceedance. An exceedance is defined to occur whenever there may be an instantaneous concentration above the CCC or CMC."**
>
> **"Excursion. An excursion is defined to occur only when the average concentration over the duration of the averaging period (i.e., four days or one hour) is above the CCC or CMC, respectively."**

Lastly, to support the DEC determination that imposition of an AML is impracticable, the following definition has been added to Fact Sheet Appendix C:

> **"Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."**

No other modifications to the Permit and Fact Sheet have been made based on this comment.

3.3 Inconsistency Between Methanol Concentrations in Pilot Test and Operations

EPA states there appears to be a discrepancy between the reported methanol concentrations for the Pilot Study shown on Fact Sheet page 13 and 15. On page 13, the introduction to the Pilot Study, the Fact Sheet states that the percent (%) by volume of methanol in the produced water during the Pilot Study was 14 % but is anticipated to be less than 5 % by volume. On page 15, DEC indicated that "In general, percentages of methanol are expected to range between 10 % and 20 % of the total effluent discharged. EPA indicates there seems to be a contradiction; is the anticipated concentration a range between 10 % and 20 % or is it less than 5 % by volume?

DEC Response:

The application including the Pilot Study data indicated a range of possible methanol concentrations between 10 % and 20 % with an estimated average during the test of 14 % by volume based on the information available at the time. During the five-day applicant review, the applicant updated the concentration anticipated during operation based on perceived ability to optimize methanol use. However, DEC is cautiously optimistic that optimization will lead to less than 5 % methanol as the amount of methanol can only be definitively determined by full scale operation. Nonetheless, to alleviate the inconsistency

on page 13, DEC modified the last sentence in the third paragraph of Fact Sheet Section 2.2.4 to read:

> "During the pilot test, daily methanol injection rates were approximately 300 gallons of methanol per 2,100 gallons (50 bbl) of produced water, or 14 percent (%) by volume but rates are anticipated to **be** less than 5 % by volume **once optimization efforts have been employed during full scale operation**."

Then on page 15, DEC deleted the second sentence beneath Table 4 that read:

> "~~In general, percentages of methanol are expected to range between 10 % and 20 % of the total effluent discharged~~."

No other changes to the Fact Sheet and Permit have been made based on this comment.

3.4 Presentation of Chronic WET Results is Confusing and Needs More Context

EPA calls attention to a statement made by DEC on page 15 discussing a possible onset of trends in one of the nondetectable chronic WET results where there were noted minor indications in the highest dilution tests that an observation of an endpoint may occur in a higher dilution series if it had been included. EPA states that the imprecise language does not provide the reader an adequate understanding of the results. Language such as "slight but noticeable reductions" are of little meaning to the reader without additional context or data.

DEC Response:

EPA suggests DEC provide a quantitative analysis where the discussion was purposefully intended to be qualitative in nature. The discussion was also provided in support of the desktop analysis of acute ECOTOX studies for methanol that were used to estimate the potential chronic WET. Hence, the statement is intended to qualify what appeared to be minor changes in observations in the highest dilution series, compared to the lower dilutions that may indicate an impending observation of the 25 % effective concentration (EC_{25}) in higher dilutions if they had been tested. The recommendation to include additional statistical information in an attempt to move the discussion toward a "defensible quantitative argument" would not be successful because there would be no statistical support. Hence, providing dose-response curve and percent minimum significance would also mislead the reader that we are presenting more than a qualitative opinion that the evaluation of the ECOTOX data seems appropriate. Especially when DEC clearly states that these qualitative observations "are not statistically significant." DEC absolutely agrees with EPA that additional data is needed but does not agree that such data is necessary in this instance to establish conservative permit conditions for a first time discharge. Until data becomes available during the next permit term, DEC proposes to err conservatively in their assumptions rather than attempting to impose more stringent requirements, as EPA suggests, without the additional supporting data needed to support those more stringent requirements.

To provide the reader with additional context without overstating the statistical significance of DEC observations of test data, the fourth sentence in the second paragraph on page 15 of the Fact Sheet has been modified to read:

> The September 2019 chronic test results for *M. beryllina* and *M. edulis* show that, while not statistically significant, there are slight but noticeable reductions for growth, survival and development shown in the 1 % effluent dilutions **when compared to the 0.5 % dilution. For example, survival observations for *M. edulis* and *M. beryllina* went from 94 % to 90 % and from 95 % to 92 %, respectively."**

Although there are similar trends apparent for growth and development, providing that additional detail would not change the qualitative discussion. No other changes were made to the Fact Sheet or Permit based on this comment.

3.5 The Chronic WET Data from the Pilot Study is Meaningless and is Confusing

EPA states that the chronic WET test data from the Pilot Study is essentially meaningless for interpretation and as presented in Table 3 is very confusing. If additional pilot testing is preformed, DEC should include the data in a less confusing manner that allows for interpretation. For instance, the columns in Table 3 have titles of NOEC (TU_c) and IC_{25} (TU_c) and creates confusion as to whether the results represent a percentage of effluent or TU_c values. It is also unclear why the point estimate technique used for *M. edulis* embryonic development was not used for other species and nonquantal endpoints. In addition, DEC states that there were six test with total of 10 endpoints on page 14 but then says there were 10 tests on page 15.

DEC Response:

DEC agrees the 2019 chronic WET test data has limited value. As discussed in Fact Sheet Section 2.2.4, the tests did not bracket toxicity due to the dilution series being too low. DEC provides a detailed explanation based on historic acute WET test literature used to inform the likely range of chronic WET to support the acceptance of the proposed maximum expected chronic WET submitted in the application.
Based on this EPA comment, DEC refers EPA to the introductory paragraph to Table 3, which informed:

> "Table 3 summarizes the 10 results of the WET tests on all six samples based on no-observed-effect concentration (NOEC) and 25 % Inhibition Concentration (IC_{25}) reported as TU_c."

Hence, the introduction to the table explains 1) that there were six samples collected (two sample series with three samples for each series) allowing for 10 tests; 2) the results are shown as being based on the NOEC and the IC_{25}, and 3) those results are reported as TU_c. In the preceding paragraph, DEC's reference to "six" tests should have been 10 tests. The only test where an observed endpoint occurred in one of the test dilutions was for *M. edulis* in November 2018, resulting in an estimate of 28.74 TU_c. No other tests resulted in observation of endpoints that would support a point estimate technique.

Based on this comment, DEC modified the second sentence in the second paragraph on page 14 to read as follows:

> "The bioassay laboratory performed a total of ~~six~~ **10** tests using *Mytilus edulis* (common mussel, for embryonic development), *Americamysis bahia* (mysid

shrimp, for survival and growth), and *Menidia beryllina* (inland silverside fish, for survival and growth)."

No other changes to the Permit or Fact Sheet have been made based on this comment.

3.6 Chronic WET in the MODU deck drainage is not Representative or Consistent

EPA comments that the single sample event for the chronic WET for the MODU in Table 5 is not representative of the discharge and appears to be significantly different than results from the Platform. With the number of chemicals identified in the discharge, a higher chronic WET result should be anticipated than what is presented. EPA asks if the activity on the MODU was known at the time of sample collection or if there are best management practices (BMPs) in place that helped prevent/minimize chemicals in the discharge.

DEC Response:

The list of chemicals provided in the referenced section represent "typical" chemicals that may be in the effluent. Although the 2014 Permit did not specifically identify BMPs to reduce pollutants in the discharge of deck drainage, it is nonetheless required through the general provision of Permit Section 2.2.4. Furthermore, the 2014 Permit did not require reporting of activities during the chronic WET monitoring; attempts to conduct chronic WET monitoring during a precipitation event "and" an activity is not logistically practicable nor supported by the history of this requirement (See Comment Response 3.12).

Although DEC understands that the operating BMP Plan based on the 2014 Permit inherently includes pollutant segregation and minimization for deck drainage, the Permit under review incudes specific BMP requirements for deck drainage that can be clarified. To make this requirement more clear, DEC is adding the following sentence to the specific BMP requirements for deck drainage in Permit Section 4.2.9.1 and Fact Sheet Section 7.3.1.1:

> **"BMPs must also include mitigating contact between precipitation, or snowmelt water, and sources of pollution stored on deck using appropriate housekeeping and other BMP activities discussed in Permit Section 4.2.5."**

No other modifications to the Permit or Fact Sheet have been made based on this comment.

3.7 The Requirement for Primary Treatment of Graywater is Not Supported in Text

In Fact Sheet Section 2.3.2, EPA calls attention to the last sentence that reads "Graywater may be discharged without meeting secondary treatment requirements if primary treatment is provided and a waiver per 18 AAC 72.060 is granted by DEC." EPA requests that DEC clarify in the Fact Sheet the significance of primary treatment in the waiver process and how DEC came to that decision.

DEC Response:

Details on how primary treatment is determined in the waiver process is discussed in the Subsection 2.3.2.1. Graywater is defined in 18 AAC 72.990(50) as attaining 30 % reduction in both total suspended solids (TSS) and five-day biochemical oxygen demand

(BOD_5). Upon demonstrating attainment of primary treatment, the permittee must submit a report supporting the requirements of 18 AAC 060. For additional information, DEC refers EPA to 18 AAC 72 as referenced in Fact Sheet Section 2.3.2.1.

No modifications to the Permit or Fact Sheet have been made as a result of these comments.

3.8 EPA-Approved Mixing Zone Regulations Incorrectly Referenced

DEC references the EPA-approved version of mixing zone regulations in the WQS as 18 AAC 70.240, excluding 18 AAC 70.240(g)(1),(2), and (4). Based on the approval letter issued by EPA on September 30, 2019 for the mixing zone regulations, EPA believes this reference should instead exclude 18 AAC 70.240(g)**(2),(3)**, and (4) as those section that are not approved.

DEC Response:

DEC concurs with EPA and corrected the typographic error in Fact Sheet Section 3.3 to read:

> "Per 18 AAC 70.240, excluding 18 AAC 240(g)(~~1~~**2**), (~~2~~**3**), and (4) as amended through March 23, 2006 the Department may authorize mixing zone(s) in an APDES permit."

3.9 More Explanation Needed in Fact Sheet Section 3.3.3 for Domestic Wastewater

EPA presents the following statement from Fact Sheet Section 3.3.3, third paragraph, second to last sentence that says:

> "Any other MODU used under the Permit would also be required to obtain a waiver to minimum treatment standards in order to discharge graywater."

If the MODU could meet secondary treatment standards, could they discharge under the Permit without a waiver? If so, this should be explained.

DEC Response:

Yes, the MODU can discharge domestic wastewater that meets secondary treatment standards. This discharge is listed in the Permit as Discharge 003B – MODU Domestic Wastewater. There are several Fact Sheet Sections prior to Section 3.3.3 that help explain these relationships. For example, Sections 2.3.2, and subsections that follow, provided a detailed discussion concerning the interrelationships between graywater (sinks and showers) and blackwater (toilets and urinals) and how they are both considered domestic wastewater per 18 AAC 72 and allowed to be discharged under the Permit. DEC does not agree that further explanation is necessary in this section as it is adequately discussed elsewhere in the Fact Sheet prior to Section 3.3.3.

No Changes to the Permit of Fact Sheet have been made based on this comment.

3.10 pH limit in Table 10 Appears to Incorrect

EPA points out that the upper pH limit of 9.5 standard units (su) in Table 10 may be a typographic error given the lower limit is 6.5 su, suggesting the pH limit is a WQBEL. If true, the upper limit should be 8.5 su rather than 9.5 su.

DEC Response:

DEC concurs with EPA's assessment and changed the upper pH limit in Fact Sheet Table 10 to 8.5 su to be consistent with the WQBEL determination and Permit Table 3.

3.11 Domestic Wastewater Limits for BOD_5 and TSS Should Include Weekly Limits

The definition of secondary treatment in 18 AAC 72.990(59) includes meeting weekly limits for TSS and BOD_5 of 45 milligrams per liter (mg/L). EPA states that DEC should include weekly limits as it is possible for more samples to be collected during the month.

DEC Response:

DEC disagrees that a weekly limit for BOD_5 and TSS should be imposed based on the premise that more monitoring is better as the MDL and AML are sufficient for domestic wastewater discharges that are not associated with a Publically Owned Treatment Works (POTWs). The definition in 18 AAC 72.990(59) is based on POTWs. However, 18 AAC 83.530(1) states:

> "For a continuous discharge, any permit effluent limitation, standard, and prohibition, including those necessary to achieve water quality standards, must, unless impracticable, be stated as (1) a maximum daily and average monthly discharge limitation for any discharger other than a POTW; and (2) an average weekly and average monthly discharge limitation for a POTW."

Hence, the imposition of a weekly average for domestic wastewater from a private treatment system is not supported by regulation. Furthermore, the addition of weekly limits would not provide additional protection to achieve water quality standards but would unnecessarily add burden to the Permit.

No changes to the Permit or Fact Sheet have been made based on this comment.

3.12 Chronic WET Monitoring Data for Deck Drainage Does Not Support Removal

EPA is concerned that the justification to remove chronic WET monitoring for deck drainage as described in Section 5.1 – Antibacksliding of WQBELs is not supported by the data. DEC states that BMPs have proven to provide adequate control of pollutants through segregation of sources from precipitation. EPA points out that one result shown in Table 5 is 69.45 TU_c, which indicates there may be reasonable potential to exceed the chronic WET criterion of 1 TU_c. EPA is not certain how DEC came to the conclusion that chronic WET is insignificant and supportive of removing the chronic WET requirement.

DEC Response:

An overarching goal for the Oil and Gas Section in the APDES Program is to ensure permits are consistent among various other oil and gas permits discharging to Cook Inlet as well as provide continuity for the outgrowth of requirements based on the original intent in historic permits, such as past EPA general permits. Without this historic perspective, the original intentions of permit requirements that have been retained from past issuances can get lost and result in retaining requirements though they are no longer supported based on current data and logical outgrowths.

At the time DEC issued the 2014 Permit, DEC had just recently obtained primacy under the APDES Program and the historical perspectives were not clear at that time. As a

result, the conditions in 2014 Permit reflected those from General Permit AKG-31-5000 – Cook Inlet Oil and Gas Exploration, Development, and Production issued in 2007 (2007 EPA General Permit). Since the issuance of the 2014 Permit, DEC has gained a better understanding of the origin of these requirements and their intents. This knowledge supports DEC's decision-making and facilitates removal of some permit conditions that are not necessary to protect the receiving water as well as inform new requirements appropriate for environmental protection. Note that the current Draft General Permit "Oil and Gas Exploration, Development, and Production in State Waters of Cook Inlet" (AKG315200) has also removed this requirement. Hence, removing chronic WET monitoring in the Permit aligns with this proposed general permit such that terminating the Permit in lieu of a general permit authorization is possible. However, EPA is correct in that the Fact Sheet did not clearly articulate the history and how DEC used the data to render their decision to eliminate this requirement.

Although DEC concurs that the Fact Sheet was conclusory and lacked details necessary for reader validation, the history of this requirement in EPA permits similarly lack detail supporting past decisions to retain, rather than eliminate, chronic WET monitoring in Cook Inlet oil and gas general permits. In this response, DEC presents information to support the permitting decision made in the Fact Sheet. Specifically, DEC provides details on data quality, exposure considerations as previously discussed in Comment Response 3.2, and the historical intent of this requirement that support the decision to remove the chronic WET requirement for deck drainage rather than impose a limit for it.

The regulation determining whether a limit is necessary is found at 18 AAC 83.435(c), which states:

> "To determine whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a state water quality standard, the department will use procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing when evaluating whole effluent toxicity, and, if applicable, the dilution of the effluent in the receiving water."

As discussed in Comment Response 3.2, there is a subtle but important distinction between the EPA comment and the governing regulations; EPA indicates an exceedance of criteria triggers reasonable potential but 18 AAC 83.435(c) stresses it must be an instream excursion. While these terms are often used interchangeably, in this case it is important to make the distinction. Appendix D of the TSD provides a useful discussion that DEC presents in this case.

> "Although an exceedance is defined to occur whenever the instantaneous concentration is above the CCC [criterion continuous concentration], an excursion is defined to occur only when the average concentration over the duration of the averaging period is above the CCC. It is expected that excursions can occur without causing unacceptable effects if (a) the frequency of such excursions is appropriately limited and (b) all other average concentrations are below the CCC.

Prior to implementing the RPA, DEC first evaluates available data that would support whether or not the pollutant parameter in the discharge should be considered a POC per

Section 2.1 of the *RPA/WQBEL Guide*. Note, 18 AAC 83.435 does not mandate the application of an RPM in order to make this determination; it can be done based on raw data and an assessment of whether the pollutant (i.e., chronic WET) would result in an instream excursion in the receiving water from the discharge without a mixing zone. In the case of chronic WET in deck drainage, DEC determined that it is not a POC warranting further evaluation in the RPA and applying an RPM because the intermittent nature of the discharge is not likely to result in an excursion when the averaging period is considered and invalid data is excluded.

The chronic WET data presented in the Fact Sheet Table 5 included a typographic error; the maximum value of 69.45 TU_c should have been labeled as "less than" (<) because the results were indeterminant as the dilution series was too low to bracket toxicity endpoints. The next highest reported value was 26.5 TU_c. However, this result was from a chronic test for *Dendraster excentrius* fertilization, which DEC discounts as unreliable due to known difficulties with fertilization tests. This is supported by EPA Comment 3.13:

> "Success with the endpoint [fecundity] has proven too rare to offer much use in permitting decision making."

The remaining, valid chronic WET results include 11.5 TU_c for *Mytilus sp*. embryo development and for *Menidia beryllina* growth and survival, the results were each 1.7 TU_c. The average of these three valid results is 4.97 TU_c. Although these results exceed the numeric value for the chronic WET criterion of 1 TU_c, it does not necessarily mean the discharge will results in an instream excursion when exposure frequency and duration is considered. Development of chronic criteria, including the chronic WET criterion, is based on a four-day exposure period where the concentration is assumed to be constant over that duration (i.e., based on chronic WET tests). However, the actual discharge of deck drainage is highly variable because it is an intermittent discharge based primarily on precipitation events, which can fluctuate significantly over four days. Given the discharge is intermittent over a four-day period, the receiving water will experience periods of recovery during periods where there is no precipitation driven discharges. Hence, a precipitation event over a four-day period where a discharge occurs < 20 % of the time would result in an average chronic WET of < 1 TU_c over the averaging period. This appears to be a reasonable assumption, especially when one considers the application of BMPs to control the contact of pollutant sources with precipitation, as the primary pollution control strategy.

BMPs to control contact between precipitation and sources as the primary pollution control strategy was established previously in EPA general permits issued to oil and gas facilities in Cook Inlet. Furthermore, chronic WET monitoring was to be used as an indicator of the effectiveness of the BMPs as development of WQBELs for this discharge in general permits was considered inappropriate. The following history of this permit requirement helps to explain why DEC seeks to remove it from the Permit.

The first discussion on deck drainage begins in the 1986 EPA General Permit that required permittees to submit chemical product names, chemical compositions, and uses for any products present in significant amounts in deck drainage per the Cook Inlet Discharge Monitoring Study (CIDMS). EPA intended the CIDMS to inform whether or

not further monitoring and analysis of the waste stream was warranted (51FR 35460, October 3, 1986). Because certain chemicals were deemed proprietary, chemical composition needed to assess toxicity was not available in all cases. Therefore, the Fact Sheet for the 1999 EPA General Permit proposed chronic WET monitoring twice per year to account for an inability to obtain toxicity literature for these proprietary chemicals. After addressing comments from industry, EPA reduced this frequency to once per permit term. Per page 35 of the 1999 Response to Comments, EPA stated:

> "Because the pollutant concentrations can vary widely from place-to-place and over time, it is not practical to establish water quality based limits for this waste stream. The intent of the proposed WET requirement is to estimate the toxicity of the deck drainage….Rather than conducting WET monitoring for the life of the permit, it is anticipated that pollution prevention and product substitution in the deck drainage waste stream be specifically addressed in the BMP."

The Fact Sheet for the 2007 EPA General Permit cited CWA 308 authority to require permittees collect this data without further explanation. Hence, DEC imposed this same approach in the 2014 Permit that had been previously retained in the 2007 EPA General Permit as well as imposed in the recent AKG-28-5100 - General Permit for Oil and Gas Exploration Facilities in Federal Waters of Cook Inlet (EPA Exploration General Permit) issued by EPA in 2016. This CWA 308 requirement appears to be an extension of the original objective of determining if continued evaluation was necessary based on the chronic WET data. Note, EPA did not present any WET data or consider that this requirement may be adequately addressed by BMPs as originally intended in the 1999 General Permit when reissuing the 2007 General Permit. Instead, EPA changed their position as illustrated in the 2007 Response to Comments, Comment 169. The comment aligned with the 1999 General Permit comment response by arguing that repeating chronic WET testing is not necessary and should be eliminated from the permit. EPA responded:

> "The sampling requirement for WET testing of deck drainage should be reinitiated during each permit cycle to establish records of compliance. As such, this requirement has been retained in the final permit."

DEC is confused as to how chronic WET testing of deck drainage is necessary "to establish records of compliance" when the authority for conducting the chronic WET testing is based on CWA 308, a request for information. Compliance with CWA 308 requires submitting data to EPA for consideration and a determination on whether BMPs are effective enough to control the discharge. The unchecked retention of this requirement forms a feedback loop wherein data is continued to be submitted without an apparent review of the data and subsequent determination made by EPA.

The suggestion by EPA that a limit should be applied is contradictory given the lengthy history of EPA regulating deck drainage on platforms operating in Cook Inlet and an apparent lapse in presenting data in fact sheets to evaluate the veracity of the requirement. Furthermore, the claim that a limit is necessary because the toxicity exceeds the chronic WET criterion does not account for critical considerations of frequency, toxicity, and duration associated with an intermittent discharge of pollutants in the evaluation of instream excursions (See Comment Response 3.2).

After countless years of collecting data under the guise of CWA 308 with no apparent review of data or conclusion by EPA, DEC is seeking to remove this requirement for deck drainage and instead relying on BMPs to control the discharge as originally conceived in the 1999 General Permit. This action would result in alignment with the Draft General Permit AKG315200 currently under internal review by DEC post public notice. The importance of consistency between the Permit and AKG315200 is that future authorizations for the Julius R. Platform may be under the general permit once effective. Hence, the implications of continuing to require data collection for limited environmental protection is far-reaching and an unnecessary burden based on existing controls using BMPs and DEC's presentation of data in the Fact Sheet and as qualified in this response to EPA comments.

Although DEC believes there is sufficient justification to remove the chronic WET monitoring requirement in the Permit, a definitive demonstration that the BMPs are indeed effective can be obtained by including this requirement in the Permit one final time, pending a chronic test result obtained during the next permit term. Therefore, DEC is modifying the Permit and Fact Sheet to include monitoring of chronic WET in deck drainage, pending confirmation that the chronic WET is less than or equal to 4 TU_c as required by new Fact Sheet Section 4.2.3.1 and new Permit Section 2.1.4 that reads:

> **"Chronic WET testing is applicable to Outfall 002A only for validation that BMPs required by Fact Sheet Section 7.3.1.1 [Permit Section 4.2.9.1] are effective. Samples must be collected downstream of the OWS during periods of significant rainfall or snowmelt. For characterization of deck drainage, the most sensitive invertebrate species is required per Fact Sheet Sections 4.3.1 and 4.3.1.2 [Permit Sections 2.6.1 and 2.6.1.2] using a dilution series of 3.13, 6.25, 12.5, 25, and 50% including a control (zero % effluent) and maximum dilution after hypersaline adjustment (approximately 70 %). A chronic WET result less than or equal to 4 TU_c validates the effectiveness of BMPs such that future monitoring will not be required in the next permit reissuance or authorization under a general permit."**

DEC also emphasizes the importance of the specific BMP for deck drainage as discussed in Comment Response 3.6. Lastly, DEC has corrected Fact Sheet Table 5 to indicate a "< 69.45 TU_c."

3.13 DEC Must Specify Specific Test Methods in the Permit

EPA states that DEC must specify specific testing requirements in the permit and provides an example for Chronic WET tests using *Mysodopsis bahia* survival, growth, and fecundity, "Test Method 1007.0." EPA also cautions DEC to not apply the fecundity endpoint for the mysid test because success with the endpoint has proven too rare to offer much use in permitting decision making.

DEC Response:

DEC disagrees that specific test methods must be listed in the Permit. Since there is no regulatory requirement that DEC specify methods in the Permit the comment appears to be preferential. DEC appropriately specifies in Permit Section 2.6.3.1 the use of the *Short-term Marine Methods*, EPA 821 R 02 014 or EPA/600/R 95/136 for the chronic

WET methods. Per Permit Section 1.3., the permittee must comply with 40 CFR 136, which specifies the appropriate test methods to be used.

DEC appreciates confirmation that fecundity endpoints for *Mysidopsis bahia* is inappropriate. Note that Permit Section 2.6.1.2 does not list the fecundity endpoint for the mysid shrimp based on our similar experiences.

No changes to the Permit of Fact Sheet have been made based on this comment.

3.14 Text in Fact Sheet Section 5.1 is Confusing and May Not Be Applicable

EPA points out that the discussion in the last paragraph of Fact Sheet Section 5.1 appears to be inconsistent with other fact sheet sections that contradict the statement there was no reasonable potential for chronic WET to exceed, or contribute to an exceedance, of the chronic WET criterion at the boundary of the chronic mixing zone.

DEC Response:

DEC appreciates that EPA pointed out this discrepancy in the antibacksliding discussion of Fact Sheet Section 5.1. The text appears to have been copied and pasted from another fact sheet where the Toxicity Identification Evaluation and Toxicity Reduction Evaluations had been removed where there was no reasonable potential. This is obviously not the case for this permit. Therefore, DEC is deleting the fifth sentence from the last paragraph of Fact Sheet Section 5.1:

> "~~Note that during development of the Permit for reissuance there was no reasonable potential for the discharge to exceed, or contribute to an exceedance, of chronic WET criteria at the boundary of the chronic mixing zone and, accordingly, a limit for chronic WET is not required per 18 AAC 83.435(e) or 18 AAC 70.030(a)~~."

Lastly, DEC refers to Comment 3.2 Response concerning the use of "exceedance" versus "instream excursions."

4 Comments Submitted by Animal and Earth Advocates

On behalf of Cook Inlet Keeper, Animal and Earth Advocates (AEA) submitted comments to DEC concerning two general topics with respect to the first issuance of the produced water discharge: Anitbacksliding and Antidegradation. These comments and responses are provided in detail in the following subsection.

4.1 DEC did not Include Produced Water in the Antibacksliding Analysis

AEA states that by DEC authorizing the new discharge of produced water, they failed to address antibacksliding in the Fact Sheet because produced water was previously not included in the list of authorized discharges in the 2014 Permit. "The permit provisions authorizing this discharge are therefore prohibited unless the record demonstrates compliance with 18 AAC 83.480." 18 AAC 480(a) states:

> "Except as provided in (b) of this section, when a permit is renewed or reissued, interim effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially

> and substantially changed since the permit was issued, and the change in circumstances would constitute cause for permit modification or revocation and reissuance under 18 AAC 83.135."

The exception under 18 AAC 83.480(b), allows for a less stringent limitation, standard, or condition in the revised permit based on a material and substantial alternation or addition to the permitted facility or activity occurred after the permit issuance, and the alteration justifies the imposition of permit conditions different from the existing permit.

AEA claims that the conditions for allowing less stringent permit conditions (i.e., material and substantial changes) is not satisfied by the Fact Sheet. While the Fact Sheet describes impacts resulting from expansion to a new gas production reservoir that includes significantly more produced water and gas hydrates than the Beluga reservoir, the Fact Sheet does not explain why this necessitates the discharge of produced water to Cook Inlet. AEA then claims that the Fact Sheet does not explain why the discharge is necessary when other alternatives may be available, such as including methanol in the pipeline, constructing a larger pipeline, or finding another means to safely and reliably transport the produced water to shore. Furthermore, AEA explains that simply stating that it would be inappropriate to consider alternative measures does not satisfy the Antibacksliding requirements merely because the applicant failed to design facilities or adopt adequate processes, anticipate difficulty and costs of compliance, or consider the impacts from expanding to the Sterling gas reservoir.

DEC Response:

AEA's argument that antibacksliding provisions apply to the new discharge of produced water is flawed. In order for the antibacksliding provisions to be applicable, there would need to have been a previous limitation, standard, or condition explicit to produced water in the 2014 Permit. The 2014 Permit did not include any limitations, standards, or conditions for produced water that would lay the basis for a less stringent requirement. The inclusion of the produced water is merely a new discharge allowed by 18 AAC 135 so long as it is consistent with the Antidegradation Policy and Implementation Methods in 18 AAC 70.015 and 18 AAC 70.016, respectively. AEA also incorrectly asserts that the antibacksliding regulations require an alternative analysis. The alternative analysis is only required under the antidegradation provisions discussed in Comment 4.2 Response.

The ability to modify the Permit to include produced water as a new discharge in the reissued permit is allowed under 18 AAC 83.135(b)(1) and (2). The first part (1), addresses the material and substantial alteration to the facility, or activity, that occurred after the 2014 Permit. Under Part (2) DEC may also modify the Permit if:

> "the department has received new information, other than revised regulations, guidance, or test methods, that was not available at the time of permit issuance, and the new information would have justified the imposition of different permit conditions at the time of issuance; for APDES general permits, cause under this paragraph includes any information indicating that cumulative effects on the environment are unacceptable; for new source or new discharger APDES permits, cause under this paragraph includes any significant information derived from effluent testing required under 18 AAC 83.315(e)(1) or 18 AAC 83.360(c) after issuance of the permit."

Hence, the fact that the Sterling reservoir presented new information on the volume of produced water as well as gas hydrates that resulted in complete shutdown of gas production satisfies 18 AAC 135.135 allowing inclusion of produced water in the reissued permit. In addition, even more recent information has been submitted that indicates that gas hydrates from the Beluga reservoir, by itself, also results in pipeline plugging due to hydrates. Hence, the produced water containing gas hydrates must be removed at the platform to transport dry gas to the CPF in order to ensure a reliable gas supply that provides for social and economic benefits to residents in the Cook Inlet Region. Fact Sheet Section 1.4.3 – Facility Issues Affecting Application for Permit Reissuance adequately discusses the new information and the need to include produced water discharge from the platform. In addition, Fact Sheet Section 6.5 – Tier 2 Alternative Analysis reasonably concludes that the discharge at the platform is the most feasible and reliable alternative (See Comment Response 4.2).

No changes to the Permit or Fact Sheet have been made based on this comment.

4.2 Antidegradation Analysis Inadequately Evaluates Alternatives and Benefits

AEA states that the 18 AAC 70.016(c)(4)(C) through (F) and (c)(7)(D) require consideration of a full range of alternatives evaluated based on cost and water quality impacts and select the best alternative according to specified criteria. Per AEA however, DEC provides conclusions with little supporting justifications. For example, DEC does not adequately support the statements that expansion into the Sterling reservoir is necessary to make gas extraction economically feasible; that transporting to shore is impracticable due to hydrates, the high water volume, and the small pipeline volume; and that reinjecting the produced water is too expensive. AEA claims the Draft Fact Sheet simply states that the applicant provided adequate information to substantiate those conclusions but no discussion of facts or analysis is provided.

AEA also reminds that the antidegradation analysis requires the state to make the finding that the new degradation is required by "important social or economic development." Similar to the alternative analysis, DEC merely states the applicant made the required demonstration with little discussion of scale or relevance to the proposed new discharge of produced water. AEA suggests that DEC must describe to what degree onshore disposal of the produced water would result in loss of gas supply to Cook Inlet. How many people would lose employment, or how many would gain employment if gas is stopped? Are there impacts to tax base or philanthropic community programs? The Draft Fact Sheet does not address these considerations, which take on heightened importance given the produced water will be discharged to critical beluga habitat. DEC appears to simply defer to applicant conclusions rather than present their own independent justifications. Thus, the new offshore discharge of produced water should not be authorized in the reissued permit, leaving the applicant responsible for adjusting operations to address impacts from the new Sterling reservoir.

DEC Response:

<u>Tier 2 Alternative Analysis</u>

AEA's interpretation of antidegradation requirements for the alternative analysis is not supported by 18 AAC 70.015 or 18 AAC 70.016. Per 18 AAC 70.015(b):

> "for a discharge specified in (a)(1) of this section, the applicant shall submit sufficient information in support of the application; the amount of information and level of detail necessary must be relative to the size of the project or facility, the characteristics of the proposed discharge, and the characteristics of and potential risk to the receiving water; information required for department review includes:
>
> (A) information required under (a)(5) of this section;
> (B) any information requested under (a)(6) of this section;
> (C) a description and analysis of a range of practicable alternatives that have the potential to prevent or lessen the degradation associated with the proposed discharge;
> (D) identification of receiving water quality and accompanying environmental impacts on the receiving water for each of the practicable alternatives in (C) of this paragraph;
> (E) evaluation of the cost for each of the practicable alternatives in (C) of this paragraph, relative to the degree of water quality degradation;
> (F) identification of a proposed practicable alternative that prevents or lessens water quality degradation while also considering accompanying cross-media environmental impacts;..."

The burden of demonstration lies, primarily, with the applicant but DEC has the discretion to request additional information in order to render the information sufficient per 18 AAC 70.016(a)(5). As indicated in the above citation, the information submitted is not required to be "full" or "all inclusive" but rather needs to be reasonably necessary for a decision. Furthermore, the alternative analysis does not require the applicant to consider alternatives that are not practicable. Per 18 AAC 70.990(48):

> "practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes."

Prior to obtaining the application for the antidegradation analysis, DEC also coordinated with Furie on the appropriate alternatives to be provided per 18 AAC 70.016(c)(6). Specifically, DEC requested Furie provide information sufficient for concluding that transport of produced water to shore via pipeline (See Fact Sheet Section 6.5.1.1), injection at the platform (See Fact Sheet Section 6.5.1.2), and construction of model technology per the Effluent Limitation Guidelines (ELGs)((See Fact Sheet Section 6.5.1.3) are impracticable alternatives. These sections adequately summarize why these alternatives were considered impracticable based on the appropriate definition in the WQS. Per Fact Sheet Section 6.3(*A*), the Department found the information provided in application for reissuance to be sufficient for the antidegradation analysis and appropriately concurred that these three alternatives were not practicable.

Upon eliminating alternatives that are not practicable, per the definition, Furie proposed three practicable alternatives. Per 18 AAC 70.16(c)(7)(D), the Department found the alternative analysis provided under (4)(C) through (F) of this subsection demonstrates that:

(i) "A lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary; when one or more practicable alternatives that would prevent or lessen the degradation associated with the proposed discharge are identified, the Department will select one of the alternatives for implementation, and

(ii) the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the Department to be the most effective and practicable.

Hence, based on credible and sufficient information provided by the applicant, the Department made a reasonable selection of the alternative for the treatment of produced water using a combination of separation, filtration, and granular activated carbon prior to discharge. Per the Pilot Study, the effluent is anticipated to remove hydrocarbons to below detection as well as removing metals to concentrations slightly above their respective water quality criteria. The resulting impacts to the receiving water will be limited to a small chronic mixing zone and a very small acute mixing zone (See Fact Sheet Section 3.3.1.4) such that the resulting water quality beyond the boundary of the chronic mixing zone will not cause, or contribute to, an instream excursion of WQS (See Fact Sheet 6.5.3.2) and will fully protect existing uses of the waterbody (See Fact Sheet Sections 6.3(B) and 6.5.3.3). Because the existing uses of the waterbody are being fully protected, beluga whale are also protected (See Fact Sheet Sections 3.3.9 and 8.1). The ultimate result of the alternative analysis is that the lowering of water quality is necessary from a technological perspective pending demonstration of social or economic benefits to residents in the vicinity of the discharge.

Tier 2 Important Social or Economic Development

Similar to the regulations for alternative analysis, AEA's interpretation of antidegradation requirements for demonstrating lowering of water quality as necessary to accommodate important social or economic development, is beyond the requirements of 18 AAC 70.016(c)(5). Once lowering of water quality is determined to be necessary based on the alternative analysis, DEC need only demonstrate that there are important benefits, either economic or social, to affected communities in the area where the receiving water for the proposed discharge is located. Hence, the demonstration is not a cost benefit analysis or any part of the alternative analysis as suggested by AEA. Furthermore, only one of the benefits, economic or social, need exist to satisfy the requirement. Furie successfully submitted both important economic and social developments associated with the discharge. Therefore, DEC has made a correct determination without the inappropriate socio-economic analysis suggested by AEA.

No changes to the Permit or Fact Sheet have been made based on AEA comments.

5 Comments Submitted by the Cook Inlet Regional Citizens Advisory Council

On January 19, 2021 RCAC submitted comments during the extended public period that focus on the antidegradation analysis and DEC's role in EPA analysis and determinations for ELG reviews.

5.1 Comments on the Antidegradation Analysis

RCAC states that DEC should require Furie to initiate alternative three over alternative two due to the uncertainty that the addition of flotation, in the three phase separation process, is not necessary to meet permit limits. In addition, RCAC claims that the Fact Sheet summarizes discussions between the applicant and DEC but does not provide the details of these discussions with the public.

DEC Response:

DEC typically has pre-application discussions with applicants to ensure that the information in the application is complete. However, the permitting decisions made by DEC are primarily based on the submitted application and clarifications as needed. The application and clarifications are appropriately included in the administrative record. However, DEC is not obligated to provide "details of each and every conversation" to the public as RCAC implies; the basis for the Permit is the submitted application and subsequent clarifications, which are adequately explained in the Fact Sheet.

The alternative analysis determination from DEC was correct. The data from the Pilot Study adequately demonstrated the ability of the selected treatment system to meet most water quality criteria at the point of discharge. For those limited water quality POCs, copper and chronic WET, the addition of flotation to the separator would be ineffective in removing those constituents. Hence, flotation would have no impact on WQBELs.

While flotation could increase treatment efficiencies for oil necessary to meet the technology-based effluent limits (TBELs) required by the ELGs, the "*likelihood*" that this is necessary is small. The MDL for oil is 42 mg/L and the AML is 29. The results from the Pilot Study without flotation resulted in a maximum concentration of 28 mg/L and an average of 15 mg/L. Hence, the selected alternative appears to have an efficiency 67 % more than necessary for the MDL and 52 % more than necessary for AML. Note also that the maximum observed concentration is below the AML, indicating the system will most likely meet both requirements upon a single sample. While there is always some level of uncertainty when comparing results from a Pilot Study to a fully operational system, in this case alternative 3 does not appear to be necessary.

No changes to the Permit or Fact Sheet have been made based on this comment

5.2 Comment on DEC's Role in ELG Development and Promulgation by EPA

RCAC takes the opportunity to reiterate their belief that DEC has the responsibility to ensure that EPA removes the exception for produced water for New Sources in the ELGs given DEC cites the ELGs in their oil and gas permits.

DEC Response:

New Source Performance Standards (NSPS) are based on pollutant removals that reflect the best available demonstrated control technology as determined by EPA. For NSPS, EPA is directed to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements. DEC does not have authority to direct EPA on how to conduct these evaluations of the ELGs for NSPS. Instead, DEC is responsible for providing information to EPA upon request to support their independent review. Ultimately, DEC supports evaluation of ELGs based on sound

science, technological considerations, economics, etc. devoid of political interference as those lobbied by RCAC.

No changes to the Permit or Fact Sheet have been made based on this comment.

6 Comments Submitted by Chickaloon Village Traditional Council (Nay' dini'aa Na')

The Chickaloon Village Traditional Council (Chickaloon) initially submitted comments after the close of the first public notice period. However, Chickaloon submitted on time comments during the extended public notice issued from January 11th through 19th, 2021. Chickaloon comments address concerns for discharge of pollutants above the naturally occurring receiving water concentrations for those pollutants and contests the allowance of mixing zones in those situations as it poses potential impacts to their traditional use areas for harvesting salmon and other fish.

DEC General Response:

DEC respects Chickaloon's viewpoints that seek to protect the aquatic resources of Cook Inlet in perpetuity. This too is DEC's mission, while allowing for sustainable resource development to support the Cook Inlet Region and the State of Alaska. Per Alaska Statutes, Title 46 – Environmental Conservation, Chapter 3, Section 10 (AS 46.03.010):

(a) It is the policy of the state to conserve, improve, and protect its natural resources and environment and control water, land and air pollution in order to enhance the health, safety, and welfare of the people of the state and their overall economic and social well-being.

(b) It is the policy of the state to improve and coordinate the environmental plans, functions, powers, and programs of the state, in cooperation with the federal government, regions, local governments, and other public and private organizations, and concerned individuals, and to develop and manage the basic resources of water, land and air to the end that the state may fulfill it is responsibility as trustee of the environment for the present and future generations.

In order to accomplish these goals, DEC must comply with 18 AAC 70 and 18 AAC 83, as intended by statute, and evaluate and address a wide range of public concerns, such as those raised by the Chickaloon Village Traditional Council in the following sections.

6.1 Cook Inlet is a High Resource Value; Discharges Should Not Exceed Background

Chickaloon references the EPA Exploration General Permit that disallows discharges in areas of high resource value, such as Kamishak Bay. Chickaloon considers all of Cook Inlet as having high resource value such that discharging above background concentrations for pollutants will degrade the water quality. Although Cook Inlet is not listed as impaired in the *Alaska's Final 2018 Integrated Water Quality Monitoring and Assessment Report*, March 26, 2020 (*2018 Integrated Report*), allowing discharges above background concentrations will result in lowering of water quality in the immediate area for some period of time, even in a mixing zone. Chickaloon objects to allowing discharges that will increase the amount of pollutants above background concentrations because it will not result in improved water quality of the waterbody.

DEC Response:

While DEC acknowledges the importance of Cook Inlet to Chickaloon as a traditional use area, the application of our WQS through implementation of the APDES Program supports an appropriate level of environmental protection. Cook Inlet is considered a Tier 2 waterbody as it meets all existing water quality criteria that has been established in the WQS to ensure protection of existing uses. The Permit was developed to protect all existing uses in the marine waters of Cook Inlet, including those associated with traditional uses. Protected uses include water supply for aquaculture, seafood processing, and industrial use; water recreation uses including contact recreation and secondary recreation; growth and propagation of fish, shellfish, and other aquatic wildlife; and harvesting for consumption of raw mollusks or other raw aquatic life. Per WQS, the existing uses are protected for a Tier 2 waterbody if the resulting water quality, after mixing, meets all applicable water quality criteria.

The comment provided by Chickaloon is not consistent with implementation of WQS and conflates the requirements required for an impaired waterbody (Tier 1) and high quality waters that constitute an outstanding national resource (Tier 3). As stated by Chickaloon, waters of Cook Inlet are not impaired, nor is it considered a waterbody protected as an outstanding national resource (Tier 3); there are currently no designated Tier 3 waterbodies within the State of Alaska. Hence, the lowering of water quality for a Tier 2 waterbody is allowable so long as it complies with Antidegradation Policy and Implementation Methods. DEC appropriately conducted the Antidegradation Analysis per Fact Sheet Section 6 based on sufficient and credible information submitted by the applicant (See Comment Response 4.2). In addition, mixing zones are allowable for Tier 2 waterbodies if they meet the requirements of 18 AAC 70.240. The information presented in Fact Sheet Section 3.3 – Mixing Zones, complies with 18 AAC 70.240.

6.2 Mixing Zones Should Not be Allowed

Chickaloon begins this comment by providing a summary of all the authorized mixing zones and their areal and volumetric extents associated with the Mobile Offshore Drilling Unit (MODU) and points out that because the MODU can relocate in Cook Inlet that it could represent impacts at multiple locations during the term of the Permit. Next, Chickaloon comments specifically on the mixing zone for produced water indicating that both copper and methanol would be discharged at concentrations that aquatic life would not normally be exposed to. Specifically, copper, silver, and selenium are toxic at low concentrations and need dilution in the chronic mixing zone that measures approximately 6 million cubic feet in volume. Methanol is also in the discharge due to the common industry practice of injecting methanol in the well to mitigate hydrate formation. Because methanol may not be particularly toxic and there are no water quality criteria applicable to methanol, the Permit relies on measuring chronic WET, which the applicant has had problems analyzing during the Pilot Study. Although methanol is known to quickly degrade in the marine environment, discharging high concentrations is inconsistent with maintaining a sustainable and intact ecosystem in perpetuity. These mixing zones should not be authorized.

DEC Response:

Mixing zones authorized in the Permit are based on the effluent quality of produced water from the Pilot Study and the other information submitted by the applicant. While the chronic mixing zone is sized to ensure chronic WET from methanol is allowed to mix and biodegrade, other parameters (i.e., copper, silver, and selenium) were not observed to have concentrations that pose impacts beyond a short distance from the proposed outfall. Consider that the 0.4 meter acute mixing zone is sized based on meeting the acute copper criterion of 5.78 mg/L and resulted in a dilution requirement of 3.25. The corresponding chronic dilution required for copper is based on the chronic criterion of 3.73, resulting in a required dilution of 5.75. Based on the mixing zone modeling, the chronic copper criterion will be met within inches outside of the 0.4 meter acute mixing zone. Per the Pilot Study data illustrated in Fact Sheet Table 2, no other metals or hydrocarbons exceeded their respective criteria at the point of discharge. Although the acute mixing zone is necessary, the small size complies with 18 AAC 70.240 and aligns with the overarching goal of the CWA to eliminate pollutants in discharge and reduce lethality of toxic pollutants on aquatic life to the extent practicable.

Because methanol is known to rapidly degrade in marine receiving water and is not considered particularly toxic, there are no water quality criteria established for methanol in WQS. Instead, DEC appropriately requires the permittee to control the discharge using chronic WET monitoring and limits. The applicant assessed chronic WET during the Pilot Study and there is adequate information available (i.e., past bioassays for methanol) that informed what size mixing zone is prudent until additional data can be obtained during full operation of the facility. DEC anticipates that with additional data obtained during the next permit term, as well as optimization of methanol use or adoption of even less chemical substitutes, that the future mixing zone will be even smaller and more protective of the environment.

No changes to the Permit or Fact Sheet resulted from this comment.

6.3 No Better Alternative Appears Available but Methanol Could Affect Treatment

Chickaloon concurs with the alternative analysis as they understand that onshore injection will not resolve the reoccurrence of hydrate blockages that force production shutdowns. Although the second alternative results in a favorable outcome, Chickaloon does not agree that the resulting mixing zones are small. In addition, Chickaloon provides a reference that indicates methanol could have a negative effect on the treatment system's ability to efficiently remove dissolved hydrocarbons prior to discharge.

DEC Response:

DEC reviewed the reference provided by Chickaloon and agrees in general with the potential for decreased efficiency to remove hydrocarbons. However, DEC does not agree that the impacts will be significant for the specific treatment system proposed as the impacts will be limited to only the separation process. The Pilot Study influent included methanol concentrations around 10 to 14 % yet the observed removal efficiencies were very high for oil and grease. Oil and grease is primarily removed by the separator, which can be upgraded to include the addition of flotation to enhance removal efficiencies if needed. In addition, the reference provided did not consider that the treatment also

includes granular activated carbon (GAC), which was demonstrated to remove dissolved hydrocarbons to below analytical detection levels. The GAC is also effective in removing metals to varying degrees (See Fact Sheet Table 2). Although methanol could have some impacts on treatment in the separation system, it can be upgraded with flotation and the final polishing of the effluent using GAC is expected to negate those impacts completely.

No changes the Permit or Fact Sheet have been made based on this comment.

7 Comments Submitted by Furie Operating Alaska

Furie Operation Alaska, LLC (Furie) initially submitted comments after the close of the first public notice period. However, Furie submitted on time comments during the extended public notice issued from January 11th through 19th, 2021. Furie's comments generally address concerns over conducting chronic WET monitoring and the timeliness of issuing the Permit.

7.1 Updated Vicinity Map for Fact Sheet

During the first public notice (November 24 through December 28, 2020) Furie submitted a timely comment requesting adoption of an attached updated Vicinity Map to replace existing Figure A-1 in the Fact Sheet. Furie intended to provide this updated figure but was unable complete it prior to the public notice and did not want to delay it.

DEC Response:

DEC appreciates submittal of an updated Figure A-1: Location Map – Julius R. Platform and has included it in the Final Fact Sheet as requested. No other changes have been made to the Permit of Fact Sheet based on this comment.

7.2 Julius R. Platform is not Specifically Authorized on the Permit Cover Page

Furie calls attention to the second paragraph on the cover page of the Permit that appears to only specifically authorize discharges from MODU. Furie requests that this authorization language also includes the Julius R. Platform.

DEC Response:

DEC appreciates pointing out this inconsistency. DEC has modified the second paragraph on the cover page of the Permit to read:

> "…is authorized to discharge from **the Julius R. Platform and** a mobile offshore drilling unit **(MODU)** within the Kitchen Lights Unit Lease Area with the following approximate location:"

7.3 DEC Should Allow for Adjustments to Chronic WET Test Methods

Furie resubmits and expands on a comment from the shortened 10-day applicant review with new information requesting a modification of chronic WET sampling requirements that would result in a reduction of helicopter trips to and from the Julius R. Platform. During response to 10-day comments, DEC indicated that they lacked the authority to modify the sample collection and acceptance criteria for seven-day chronic WET tests where three samples over a five-day period is required with individual hold times not to exceed a maximum of 72 hours. Furie presents an email from EPA Region 6 WET Coordinator that states:

> "An extension of holding times up to 72 hours is allowed, and samples that have met the holding time for first use of the sample may be used for daily renewals. The method requires a max holding time of 36-72 hours, therefore we can't approve an extension beyond 72 hours. If for the reasons you stated below, a sample does not arrive within the holding time (and doesn't meet it at the time of first use), then older samples that have met the holding time may be used to finish the test. Our Region 6 permits usually contained a clause that waives the minimum amount of samples to accommodate for situations like these. Also, the waiver states that if the effluent stops discharging in the middle of the test, the test should be finished with the samples that already have been collected and met first use holding time."

Furie also submitted a copy of Region 6 Permit TX0030279 that provides the specific language of the waiver that reads:

> "If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples and the minimum number of effluent portions are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent, and must meet the holding time between collection and first use of the sample. When possible, the effluent samples used for the toxicity tests shall be collected on separate days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

Furie presents a snippet from an RTC from Region 6 for General Permit GMG290000 that illustrates the unnecessary economic burden associated with monthly samples that reads:

> "The proposed increase in frequency to twice a year will be a significant economic burden for offshore operators currently testing for toxicity on an annual basis. These additional toxicity tests for routine produced water discharges would be an increase in operating expenses with negligible value. Considering the very low number of toxicity test failures based on actual lab results, there is no environmental benefit to justify this increased expense."

Although the Permit provides for opportunities for a frequency reduction based on correlation of methanol or substitution of a less toxic chemical, Furie assumes that these reductions are unattainable. Assuming Furie will not attain a frequency reduction, the Permit requires monthly chronic WET tests, resulting in six times the economic burden that EPA considered significant. If Furie cannot utilize the already-scheduled helicopter flights for crew changes to ship samples, Furie would need to procure additional helicopter services. Furie received a quote of $10,000 monthly ($120,000 annually, and potentially greater than $500,000 over the permit term) to reserve a helicopter for three flights over a 5-day weather window each month. Furie's current vendor, Bio-Aquatic testing in Carrolton, TX, has been conducting WET tests for the Gulf of Mexico (GOM) operators covered by GMB290000 and other GOM general permits for over 20 years.

Furie reports that an Alaska mine operator covered under AK0050571 also is allowed to reduce sampling requirements. Furie also presents APDES Permit AK0050571 that has an alternative approach that states:

> All quality assurance criteria and statistical analyses used for chronic tests and reference toxicant tests must be according to Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms Fourth Edition (EPA/821-R-02-013, October 2002). If logistical problems beyond the control of the Permittee prevent the timely delivery of a sample to the laboratory, the Permittee may collect only two samples for WET testing and the acceptable sample holding times can be extended from 36 to 48 hours.

Bio-Aquatic, Furie's Texas-based bioassay laboratory, indicated that they only receive a single produced water sample (never two or three) from the GOM operators and only two samples from the operator covered under AK0050571 for 7-day WET tests. The language in the Permit suggests that deviations are allowed only in rare circumstances, but in practice, the reduced sample numbers are the de-facto permit requirement, as evidenced by over 20 years of industry practice.

Furie also asserts that if they had more pollutants in their discharge, they would have less WET requirements but because they have very clean effluent, they are being unnecessarily penalized. Supporting this assertion, Furie points out that several oil production facilities discharging in Cook Inlet have very large mixing zones due to high concentrations of hydrocarbons: TAH concentrations from 8.2 mg/L to 17.3 mg/L. Despite these extremely large mixing zones, those permittees are only required to monitor chronic WET on a quarterly or semiannual basis. Meanwhile, the discharge from the Julius R. Platform has hydrocarbons ranging from 0.345 mg/L to 0.7512 mg/L in raw produced water that is reduced to nondetectable levels after GAC treatment yet Furie must conduct compliance monitoring monthly. The three samples within one week required by the monthly chronic WET tests, are "without question the most onerous and logistically challenging of all the compliance tests required by ADEC." WET tests are also the most expensive tests to conduct. The irony of the matter is that if Furie had "dirtier" or more polluted produced water, it would have less onerous compliance requirements, because a larger mixing zone would be approved.

Furie also restates from previous comments received during the shortened 10-day applicant review that human health and life safety risks associated with helicopter flights to and from the platform outweigh the requirements for following the chronic WET sample collection, hold times, and test acceptance criteria per EPA methods. To justify their position, Furie assumes adhering to the sample requirements for chronic WET will result in 24 additional flights during the term of the permit and presents statistics from the United States Helicopter Safety Team (USHST) that suggests the risk of an accident from Anchorage to the Julius R. Platform is on the order of 1 in 767 based on hours of operation and 1 in 3,858 for fatalities. From Kenai, the suggested risks are 1 in 1,534 for an accident and 1 in 7,716. Furie than suggests that application of common environmental risk factors be used to make the determination that the risk is unacceptable; regulatory agencies such as DEC use a risk factors from 1 in 10,000 to 1 in 1,000,000. Furie claims the increase in risk is 24 times higher and presents a "very real"

risk to human health from the additional helicopter flights required to meet the chronic WET method far exceed the benefits of meeting method requirements given extended hold times will have minimal effect on the toxicity in the chronic WET samples.

DEC Response:

Safety First

DEC considers safety to be paramount whether it is life safety or protection of human health and the environment. DEC reviewed the provided reference from USHST and other industry safety statistics and did not come to the same safety metrics as Furie. For example, the rate of 0.72 fatalities per 100,000 helicopter hours is an overall metric for 13 different sectors and does not consider specific safety cultures within industry groups. This is an important distinction because some industries, such as offshore oil, are inherently more safety conscious than other sectors. Local safety cultures also affect the level of risk among different geographic regions, such as Cook Inlet. Per USHST using the same time frame from 2013 to 2018 as that in Furie's reference, offshore oil is ranked fourth out of the 13 identified individual sectors and represents only 4 % of the fatalities that comprised the overall rate. Furthermore, per *HeliOffshore Helicopter Safety Performance 2013-2018* that specifically evaluates the offshore oil sector reports the fatality rate is 0.38 per 100,000 hours, which is approximately one half of that proposed by Furie. Hence, the offshore oil sector has safety in mind, as exemplified by the helicopter charter companies operating in Cook Inlet. Based on data from the National Transportation Safety Board (NTSB), there was a non-fatal accident in 2008 but no fatal helicopter crashes associated with the offshore oil sector in Cook Inlet have been reported since 1985, which suggests that the factors that go into a full risk assessment appear to be adequately mitigated by Cook Inlet helicopter charter companies. Ultimately, DEC does not propose the sampling requirements in the Permit should ever take precedence in evaluating the transportation of personnel to and from the platform by pilots and safety personnel.

Furie also claims that chronic WET sampling will increase flight hours by 24 times over that allowed in Texas. This statement appears to be exaggerated or misleading. DEC's analysis and assumptions are based on typical, observed industry practices; Furie will likely have two, if not three, flights per month for crew changes and maintenance. DEC assumes that one of those monthly flights will include chronic WET sample transport and, as Furie indicates, there would be two additional flights per month to comply with the chronic WET replenishments. So considering flights for crew changes and maintenance, Furie can expect between 120 to 180 flights over the five-year term of the Permit as the baseline. Adding two additional flights per month over the permit term, another 120 flights, would increases flight hours by a factor of 1.67 to 2.0 not 24. DEC anticipates costs are also exaggerated based, at a minimum, on the assumptions there will not be a reduction in frequency achieved during the term of the permit. Note if Furie is able to attain a frequency reduction by the end of the second year of the Permit, the frequency reduction will reduce flights from 108 to 36 over the remaining three years of the Permit term. Hence, the Permit allows for significant reduction in sampling that Furie is dismissing.

To increase incentive and lessen the concern of attaining adequate correlation, DEC is modifying the permit requirements for acceptance of correlation of methanol to chronic WET from 0.8 to 0.7 and a minimum of 10 samples rather than 20. The rationale is that if a correlation is not attained in first 10 samples, Furie can conduct additional chronic WET testing until the 0.7 correlation coefficient is attained. See Comment Response 7.5 for more information on changes to the Permit and Fact Sheet related to this discussion.

Monthly Monitoring for Chronic WET Inconsistent with Effluent Quality

Although DEC concurs with Furie that the effluent for produced water is of high quality, the comparison to the facilities in the comment inappropriately compares produced water associated with oil production rather than a facility producing primarily gas, like the Julius R. Platform. The size of the mixing zones for produced water from oil producing platforms are larger than the requirements for chronic WET. This situation is due to the stringency of the total aromatic hydrocarbons (TAH) criteria and the existing treatment capabilities on the older platforms. Alaska TAH criteria is among the most, if not the most, stringent in the nation. In addition, the fact that the new discharge of produced water is considered a New Source per the ELGs, necessitates an increase in treatment on the Furie platform that is not applicable to existing platforms in Cook Inlet. Hence, because this is a New Source, the applicant must use a treatment that meets best available demonstrated control technology. A better comparison is that to the Tyonek Platform, which produces mostly gas. The Tyonek chronic mixing zone is based on copper being the driving parameter rather than TAH.

The chronic mixing zone for Furie is based on unique circumstances that no other facility in Cook Inlet can be justifiably compared to. Therefore, the requirements as an outgrowth of the uniqueness is also not comparable. DEC provides Furie with an opportunity for reduction in chronic WET frequency based on correlation with methanol, or chemical substitution. No other permitted facility in Cook Inlet has comparable requirements intended to lessen the burden during the first permit term. Hence, DEC accounts for the unique characteristics of the effluent by adopting unique, incentivized permit requirements providing Furie with a path toward reduction in monitoring burden.

Hold times Not Necessary for Accurate Chronic WET Analysis

Furie states that the produced water being analyzed from the Julius R. Platform comes from thermogenic formations where heat and pressure result in no microorganisms that could biodegrade methanol in replenishment samples during the chronic WET tests. This is a false statement. Furie produces gas from the Beluga and Sterling formations, which are shallow non-associated gas deposits considered to be biogenically derived. Per *Biogenic and Thermogenic Origins of Natural Gas in Cook Inlet Basin, Alaska (Claypool, Threlkeld, and Magoon, 1980.*"

> "These gas fields are in sandstones interbedded with coals of the Sterling and Beluga Formations; the gas fields are interpreted as biogenic in origin."

This viewpoint is also supported by "*Updated Engineering Evaluation of Remaining Cook Inlet Gas Reserves*" (DNR, Division of Oil and Gas, 2015):

> "There are two distinct petroleum systems in the Cook Inlet basin: a thermogenic system, consisting of oil and associated gas derived from deep burial of Mesozoic

> source rocks, and a biogenic system comprising dry (non-associated) methane generated in the shallow subsurface as a byproduct of bacteria feeding on Tertiary coals. Approximately 94 percent of the gas recovered from legacy fields is estimated to be of biogenic origin (Claypool, Threlkeld, & Magoon, 1980). Reservoirs in the Sterling and Beluga formations are primarily dry gas."

DEC does not agree that the produced water will be absent bacteria necessary to degrade methanol during extended hold times. Methanol is recognized as having a half-life of one to seven days in marine water due to biodegradation. The prospect of conducting a correlation study between methanol and chronic WET in order to obtain a reduction in monitoring frequency demands a level of accuracy that could be significantly affected by extending hold times beyond the requirements of the method and invalidate the correlation.

DEC Limits of Authority

Despite presentation of a mining permit that appears to contradict the position, DEC stands by their legally correct interpretation of authority with respect to modifying test methods adopted by reference in WQS and stipulated under 40 CFR 136. Although 18 AAC 70.030 suggests DEC has authority to approval alternative methods, this is not directly applicable to permits under 18 AAC 83 – APDES Program. Per 18 AAC 83.005(f): Requirements, guidelines, and policy documents adopted by reference:

> "The provisions of 40 CFR Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants), revised as of September 18, 2014, are adopted by reference."

Per 40 CFR 136.1(a)(1):

> "The procedures prescribed herein shall, except as noted in parts 136.4, 136.5, and 136.6, be used to perform the measurements indicated whenever the waste constituent specified is required to be measured for (1) An application submitted to the Director and/or reports required to be submitted under NPDES permits or other requests for quantitative or qualitative effluent data under parts 122 through 125 of this chapter;…"

The chronic WET methods adopted by reference in 18 AAC 70.030 are listed in 40 CFR 136.3 and 40 CFR 136.4 addresses the procedure to obtain alternative procedures "nationwide" through requests to the National Alternative Test Procedures (ATP) coordinator. If a permittee seeks a regional alternative procedure for limited use, the permittee must first submit to the authorized state NPDES Program (i.e., APDES Program) Director per 40 CFR 136.5(b). The APDES Program Director would then submit the request to the Regional ATP coordinator with a recommendation for or against the approval. If approved, the Regional ATP may stipulate limits for the use of the alternative procedures per 40 CFR 136.5(d)(1). The Regional ATP will forward a copy of every approval or rejection to the National ATP per 40 CFR 136.5(d)(2).

Now that the legal pathway is laid out, DEC addresses the applicability of the waiver issued by EPA Region 6. EPA Region 6 does not have authority over the APDES Program; EPA Region 10 wields that authority autonomously. Hence, the Region 6 waiver is not enforceable in Region 10. Lastly, although there is a procedure available to

request alternative test procedures from Region 10, DEC will not recommend approval because the alternative procedure would not "provide equivalent estimates of chronic toxicity" required by 18 AAC 70.030. Per DEC's previous response with respect to extended hold times, bacteria laden produced water will likely degrade methanol such that it will have the effect of lessening the chronic WET.

Conclusion

Per 40 CFR 136, any changes to methods subject to the APDES Program must be approved by both DEC and EPA Region 10. While life safety is always important, the decade's long history of other Cook Inlet operator's ability to successfully comply with chronic WET methods does not support Furie's claims. However, logistics have occasionally required implementation of enforcement discretion by the DEC Compliance and Enforcement Program (CEP) as coordinated through the APDES Program. Ultimately, the permittee accepts the risk of conducting an invalid test by not following the requirements of the test method. Per Section 4.9.2 of the *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms,1st edition (August 1995):*

> "An individual test may be conditionally acceptable if temperature, DO, and other specified conditions fall outside specifications, depending on the degree of the departure and the objectives of the tests (see test conditions and test acceptability criteria summaries). The acceptability of the test will depend on the experience and professional judgment of the laboratory investigator and the reviewing staff of the regulatory authority. Any deviation from test specifications must be noted when reporting data from a test."

DEC applies enforcement discretion on species availability and hold times on a case-by-case basis for Cook Inlet operators. DEC anticipates providing similar enforcement discretion to Furie during the term of the permit for bonafide logistical difficulties. However, DEC may require that methanol analysis be conducted on replenishment samples to ensure that methanol concentrations have not diminished during extended hold times or reuse of previously accepted samples. In addition, given the concerns over obtaining accurate chronic WET results based on Furie comments, DEC is adding the following language in the new **Permit Section 2.6.3.7 – Adherence to Test Procedures**:

> "**It is unlawful and a violation of this permit for a permittee or their designated agent, to manipulate test samples in any manner or to purposefully delay sample shipments. The permittee must notify DEC when sample shipments must be delayed for just cause. Once initiated, all WET tests must be completed per the applicable method unless specific authority has been granted by DEC and EPA Region 10 Alternative Test Procedure Coordinator.**"

7.4 Typographic Correction for WET Screening Dilution Series in Permit Section 2.6.1

Furie points out a typographical error in the third sentence of Permit Section 2.6.1 that should be corrected to read:

> "For produced water, the appropriate dilution series for screen**ing the** most sensitive species…"

DEC Response:

DEC concurs there is a typographical error and has made this correction to Permit Section 2.6.1 and Fact Sheet Section 4.3.1.

7.5 Characterization of Substitution is Difficult to Implement Over a One Year Period

The logistics of conducting a study for chemical substitution as proposed in the Permit may not be practicable based on difficult logistics. First, Furie would have to transition a well away from methanol to introduce a new chemical substitute. This would be difficult to do without discharging the unapproved chemical; the unused portion of produced water from the transitioned well would have to be piped to shore for processing and disposal. The water volume from the transitioned well must be low enough so that hydrate formation does not plug the pipeline. In addition, the collected sample water must be "treated" in a similar manner to the methanol-laden water to produce an "apples to apples" comparison of WET. To treat the water containing the chemical substitution, Furie would most likely need a bench-model filtration unit that can scale the flow rate and mimic the filtration specifications of the proposed treatment system on the Julius R. Platform. If "one year" of data is required, it may not be feasible for Furie to tie up production over that duration. If the 10 sample events could be conducted on a shorter schedule, then the substitution study could be completed in a more reasonable timeframe and with less impact on operations. Furie urges ADEC to remove the "one year" requirement for the substitution study.

DEC Response:

Because Furie failed to characterize methanol or chronic WET during the Pilot Study, DEC places an emphasis on conducting characterization during the term of the Permit. It would be regulatorily irresponsible to not require characterization to support the next reissuance. Hence, even if Furie elected to not seek a correlation or substitution during the term of the Permit, DEC will still require a minimum of 10 chronic WET tests for characterization to support the next application for reissuance per Permit Section 2.6.5.1.

DEC was specifically careful to not impose means and methods in the requirements for methanol correlation or chemical substitution. The intent of requiring 10 samples over a year period was based on the assumption that only one monthly chronic WET sample would be collected for methanol characterization prior to considering a substitute. However, per Permit Section 2.6.5.2, Furie may conduct additional monitoring so long as the requirements of 40 CFR 136 and sufficiently sensitive methods per Permit Section 2.6.5.3 are followed. Therefore, reference to over one year is removed from the requirement.

After baseline characterization with a minimum of 10 samples at any frequency, Furie could seek to demonstrate through a comparison to those 10 samples for characterization of methanol and chronic WET that a substitution would be less toxic. Hence, the comparison of a substitute chemical does not require paired data points like the correlation and can be based on accelerated testing to characterize the substitute chemical. Also note that although 20 paired data points would be ideal, it may not be necessary to result in correlation coefficient of 0.7. By establishing a minimum of 10 paired data points, Furie may continue the correlation study beyond 10 if necessary to

support the correlation target as correlation coefficients are sensitive to population size. Lastly, DEC suggests the use of a RPM based on the presumptive use in the RPA during the next permit reissuance. However, a multiplier is not necessary to compare methanol toxicity to toxicity of the substitute. DEC is deleting reference to the RPM.

To provide additional clarity and lessen logistically challenging interpretation, DEC is modifying the third paragraph of Permit Section 2.5.3 and Fact Sheet Section 4.2.5.3 to read as follows:

"Methanol monitoring for characterization must be conducted monthly with the chronic WET results to determine if a correlation may be effective for monitoring that the effluent does not exceed the chronic WET limit of 410 TU_c **using methanol as a surrogate to chronic WET**. A reasonable demonstration of a correlation will be based on a minimum of ~~**20**~~ **10** paired data sets (i.e., the chronic WET result representing the most sensitive species and the methanol concentration) and a correlation coefficient greater than ~~**0.8**~~ **0.7**. A reasonable data set to approve a substitution is based on **a minimum of** 10 WET results indicating the toxicity is less than that for methanol ~~**after applying a multiplier to account for variability (i.e., reasonable potential multiplier)**~~. Based on presenting a reasonable demonstration that a correlation between chronic WET and methanol concentrations exists for the effluent, or ~~**correlation to**~~ other approved chemical substitutions for methanol **are less toxic in two consecutive samples**, the permittee may submit a written request to DEC for a frequency reduction to quarterly on compliance monitoring of chronic WET for produced water…."

Similar corrections are made in Permit Section 4.2.9.5 and Fact Sheet Section 7.3.1.5. The first sentence of the second paragraphs have been modified to read:

> "For correlative investigations, Section 2.5.3 provides objectives, initial dilution series, and target benchmarks for establishing an appropriate correlation (at least ~~**20**~~ **10** detectable results and a correlation coefficient ~~**0.8**~~ **0.7** or greater) for methanol to use for the purpose of frequency reduction on chronic WET monitoring for compliance."

The second sentence in the third paragraphs are modified to read:

> "The number of discrete data points for the substitute needed to demonstrate it is less toxic will be based on ~~**application of a variability multiplier (i.e., reasonable potential multiplier discussed in Fact Sheet, Appendix B)**~~ **a direct comparison of WET data for methanol with the proposed substitute**."

No other changes to the Permit of Fact Sheet have been made based on this comment.

7.6 Beneficial Chemical Substitutions May Not Be Less Toxic Than Methanol

Furie indicates that after the application submitted in November 2019, an evaluation of methanol use suggest they may be able to attain hydrate mitigation at a concentration of 5 % methanol. Although this will result in less toxicity in the discharge if realized, there are factors other than toxicity that Furie suggests should be considered: cost, performance, safety, and transportability (i.e., logistics). If the chemical substitution results in toxicity below the chronic WET limit of 410 TU_c but is more toxic than methanol, DEC should allow the substitution based on these other factors. Furie urges

DEC to consider allowing acceptance of the substitution based on meeting the chronic WET permit limit and wasteload allocated to the mixing zone instead of just a comparison of toxicity methanol.

DEC Response:

The frequency reduction based on a "less toxic" chemical substitute is intended to be an incentivized allowance based on pollution reduction strategy. Allowing a "more toxic" substitute goes against this pollution reduction strategy. While it may be beneficial to Furie, it would not be beneficial for the environment DEC is charged with protecting while supporting resource development (See DEC General Response in Section 6). In addition, it would fail WQS because it introduces a situation where lowering of water quality increases rather than decreases, which would go against the state's Antidegradation Policy. However, it could be allowable if during the next reissuance of the permit Furie submits the information necessary for DEC to consider a more toxic alternative based on adequate characterization data and an alternative analysis required by the Antidegradation Policy.

No changes to the Permit for Fact Sheet have resulted based on this comment.

7.7 Pilot Study Did Not Include a Skimmer

Furie points out a discrepancy in Fact Sheet Section 2.2.2 that incorrectly states that the Pilot Study included a "skimmer." The Pilot Study only included the cartridge filters and GAC unit.

DEC Response:

DEC concurs with Furie. Although the skimmer is included in the proposed treatment system, it was not included in the Pilot Study. Instead, the influent for the Pilot Study consisting of cartridge and GAC filtration originated from a three-phase separator at the CPF, which is considered to be equivalent to the skimmer proposed in the full scale treatment system.

To correct the record for the Pilot Study in Fact Sheet Section 2.2.2, DEC is deleting the first bullet in the second paragraph the references the skimmer:

- ~~Skimmer – Siemen Spinsep vessel without the potential flotation add on system to enhance separation in the future if needed~~.

And the third sentence in the third paragraph:

> ~~"The water skimmer in the system can be further optimized with a flotation add on if conditions change such that additional treatment would be warranted."~~

No other changes to the Permit or Fact Sheet have been made based on this comment.

7.8 Incorrect and Inconsistent References to Anticipated Concentrations of Methanol

Furie comments that reference to 10 to 20 % methanol concentration in the first paragraph below Table 4 of the Fact Sheet conflicts with similar information presented in Fact Sheet Section 2.2.4 that indicates the concentration is anticipated to be less than 5 %.

DEC Response:

DEC concurs with Furie that this these references are inconsistent. Note that EPA had a similar comment where DEC corrected this information in the Fact Sheet. See EPA Comment Response 3.3.

7.9 DEC Takes Too Long To Issue the Permit

On January 14, 2021 Furie submitted a letter informing DEC of a hydrate plug that formed in the gas pipeline on January 10, 2021. Although the plug was destroyed, the incident raised ongoing concerns highlighting the importance of a timely permit issuance. Furie raised several points of grievance concerning delays in issuing the permit that was originally scheduled for issuance in July 2020 based on information shared by former owners during the bankruptcy discussions. When Furie began the ownership transfer process, the new owners of Furie discovered that the permit would not be issued by July 2020 due to changed circumstances outside DEC's control. The new target date was set for October 2020 ahead of the winter season where hydrate formation can be exacerbated.

Furie is a competent Alaskan company with the highest technical and environmental, health, and safety standards. The company has followed all laws and protocols in this process and now request a firm and expedient date of issuance. We underline that these delays continue to place the company at risk and affect the company's value, cash flow and job security of our employees and backers. A prompt issuance of the permit is requested.

DEC Response:

DEC thanks Furie for providing an update on the hydrate issue. Issuing a permit such as Furie's is a lengthy and public process that can be difficult to project. Although there were delays in the reissuance, DEC is confident in the legality of the Permit and that the public, agencies, and local and tribal governments have had adequate opportunity to provide their input. DEC looks forward to continuing to coordinate with Furie during the term of the Permit to obtain the data necessary to evaluate methanol and chronic WET for potential reduction of burden to support resource development while ensuring environmental protection. In addition, DEC will coordinate with Furie on their next application for reissuance, or authorizations under a general permit, if available.

Because it did not present material or substantive content of the Permit itself, this comment resulted in no changes to the Permit or Fact Sheet. Furie should anticipate the Permit to become effective on April 1, 2021, pending any other delays due to the ongoing public process.

REFERENCES

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